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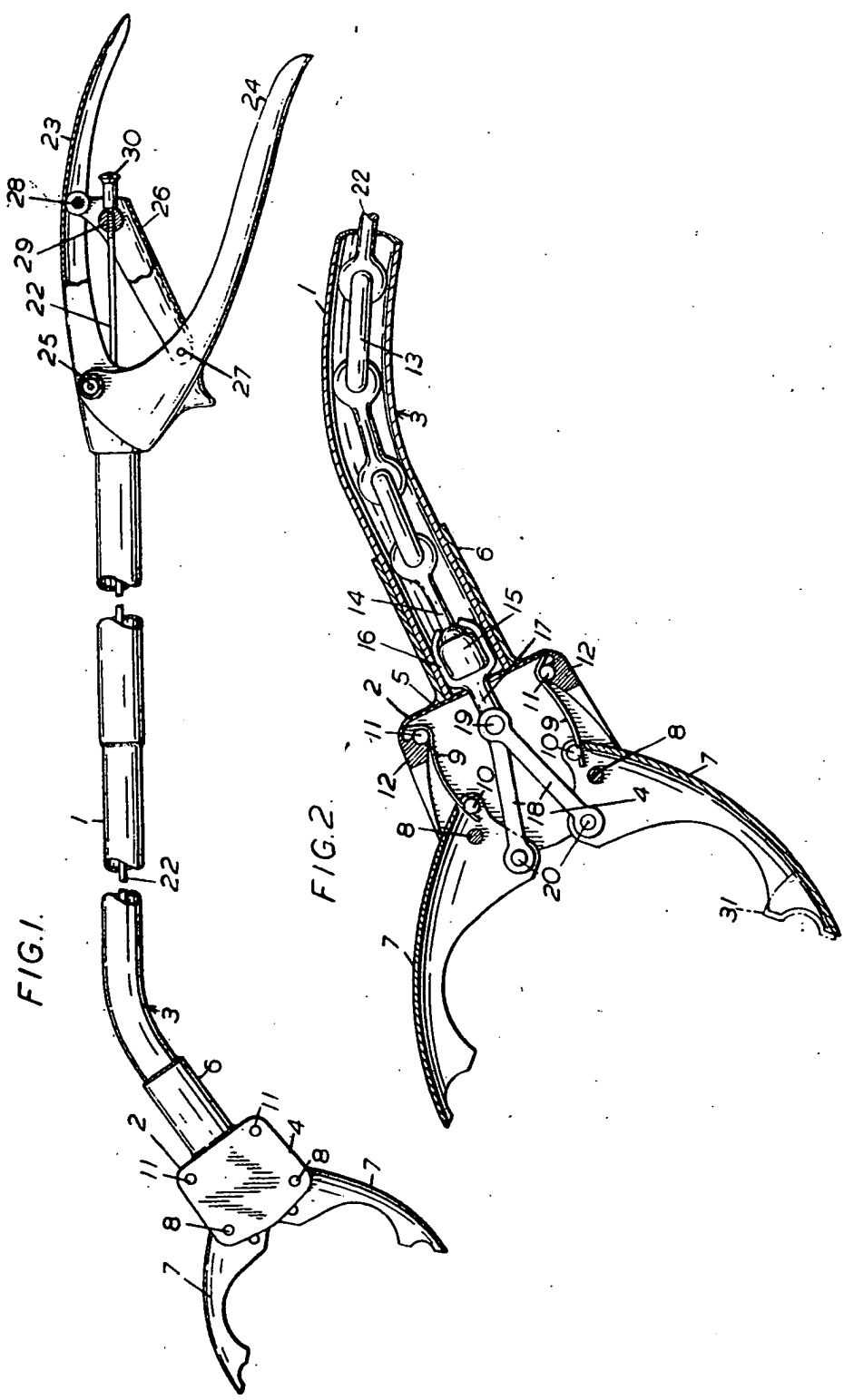
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632,621 COMPLETE SPECIFICATION

1 SHEET

[This Drawing is a reproduction of the Original on a reduced scale.]





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PROVISIONAL SPECIFICATION

Improvements in Reachers or Long Arm Devices

We, LAURENCE JENKS, a British Subject, of "Ashley", Filsham Drive, Pebsham, Bexhill, Sussex, and HARRY SYDNEY GORDON VINER, a British Subject, of 54, Barnhorn Road, Bexhill, Sussex, do hereby declare the nature of this invention to be as follows:—

This invention relates to reachers and long arm devices (hereinafter referred to as "reachers").

A reacher according to the invention comprises an arm member, a pair of jaws at one end of the arm member, at least one of the jaws being pivotable to grip an object by cooperation with the other jaw, jaw operating means at the other end of the arm member, and link means connecting the said operating means to the movable jaw or jaws.

Preferably the jaws are mounted on a unit which is capable of swivelling axially of the arm member, which latter is preferably formed with a bend adjacent the jaw end. In such a construction the said link means may comprise a flexible chain located inside the arm member, which is a hollow tube, and connected to the jaw or jaws by a connection which permits swivelling of the jaw unit while not interfering with the opening and closing movements of the jaw or jaws.

One form of reacher according to the invention will now be described in detail.

In this reacher the arm member comprises a hollow tube bent adjacent that end on which is mounted the jaw unit. The latter comprises a U-section jaw bracket between the arms of which are pivoted two movable jaws. The bottom of the said bracket is integral with a split sleeve adapted to fit snugly over the end of the arm member and to be rotatable thereon. The bottom of the jaw bracket is apertured opposite the said sleeve so that the jaw operating link means may be led through the aperture to the jaws, as described below.

Flat blade springs are provided which

[Price 2/-]

urge the jaws into the open position.

To each jaw is pivotally connected one end of a short link, the opposite ends of said links being connected, by a common pivot to one part of a two-part coupling member, the two parts of which are connected by a ball-and-socket joint allowing one part to swivel relative to the other. To the second said part is linked one end of a short jaw-operating chain which, when pulled, exerts a jaw-closing traction on the said short links. Owing to the swivelling connection provided by the coupling member the jaw bracket with jaws thereon can swivel axially of the chain without interfering with the operation of the jaws.

The further end of the arm member is formed with a fixed handgrip to which is pivoted the operating lever, the arrangement being such that the jaws are closed by grasping handgrip and lever together and drawing the lever inwards towards the fixed handgrip. For this purpose the free end of the said chain is connected, below the bend in the tube, to a rod which passes through the straight portion of the tube and emerges at the operating end, where it is pivotally connected to an intermediate point on a toggle lever lying between the operating lever and the handgrip. One end of the toggle lever is pivoted to the operating lever and the other end carries a roller which lies against, or adjacent to, the fixed handgrip. When the operating lever is pivoted inwards towards the handgrip the toggle lever is thrust downwardly in the direction away from the jaws, the roller on the free end of the toggle lever riding over the inner surface of the fixed handgrip. Thus the manipulation of the hand lever exerts, through the said toggle lever, a straight axial pull on the jaw-operating rod. The pivotal attachment of the said rod to the toggle lever embodies a screw adjustment for means operating the rod and chain.

Dated this 19th day of January, 1948.

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COMPLETE SPECIFICATION

Improvements in Reachers or Long Arm Devices

We, LAURENCE JENKS, a British Subject, of "Ashley", Filsham Drive, Pebsham, Bexhill, Sussex, and HARRY SYDNEY GORDON VINER, a British Subject, of 54, Barnhorn Road, Bexhill, Sussex, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to reachers and long arm devices such as are used for reaching inaccessible objects, which devices will be referred to hereinafter as "long-arm reachers".

Various forms of such devices are known which, comprise a long arm or handle having a pair of jaws which are mounted at one end of the arm and are adapted to be operated by suitable means from the other end thereof. The present invention has for one of its objects the provision of an improved device of this type.

A further object of the invention is the provision of a long-arm reacher which is particularly suitable for reaching goods on the upper shelves of shops and stores and for similar purposes.

According to the invention a long-arm reacher is provided comprising a rigid arm member, a head mounted on one end of the arm member so as to be turnable about the axis thereof, a pair of relatively movable jaws carried by the head, a manually actuable jaw operating member for moving the jaws to closed position adjacent the other end of the arm member and means operatively connecting the operating member with the movable jaw or jaws.

It is preferred to pivot both of the jaws to the head so that they operate simultaneously towards or away from each other but it would be possible, if desired, to use one fixed jaw and one movable jaw.

For many purposes the device may be made more convenient in use by forming the arm member with a bend towards its upper end, preferably at a short distance below the head.

In order that the said invention may be easily understood and readily carried with effect the same will now be more

fully described by way of example, with reference to the accompanying drawing.

In the drawing:—

Figure 1 is a perspective view, partly broken away and in section, of a long-arm reacher constructed in accordance with the invention.

Figure 2 is a sectional view of the head portion of the reacher shown in Figure 1.

The reacher comprises an arm member 1 which is constructed of hollow tubing. It may for example, be made of a length of steel or aluminium tubing or of several lengths of such tubing secured together by welding or other means. At one end of the arm member 1 a head 2 is provided. The arm member is bent through an obtuse angle, as shown, at the point 3 a short distance from its head end.

The head 2 comprises a pair of side plates 4 which are connected together by means of a rear connecting member 5, which latter may be formed integrally with the side plates. A sleeve 6 is secured to the rear member 5 by welding or other suitable means and is rotatably mounted on the end of the arm member 1 so that the head 2 can be turned as desired about the end of the arm member.

Two jaws 7, which may be formed from suitably shaped plates of sheet metal which are bent to approximately U form, are pivotally mounted between the side plates 4 by means of rivets or pins 8. They are urged to their open position as shown by means of flat springs 9, the ends of which bear against pins 10 provided on the jaws. The other ends of the springs 9 pass round rivets 11 and bear against the rear member 5. The rivets 11 also assist in securing the side plates 4 together and in retaining in position end members 12 which partly close the end openings between the plates 4.

The jaws 7 are adapted to be moved to their closed position against the force of the springs 9, in order to grip an object, by pulling on a chain 13 which forms the end section of a connecting member extending within the arm member 1. The end link 14 of the chain 13 is provided with a ball or stud 15 which is rotatable in a cup 16 provided on an element 17. This element 17 extends through a hole

in the rear member 5 and is connected with the jaws 7 by means of two links 18. These links are pivoted to the member 17 by means of a pin 19 and are pivotally connected with the jaws 7 by means of two pins or rivets 20 so that when a pull is exerted on the chain 13 the jaws 7 are pulled towards each other. The stud 15 and cup 16 provide a swivel connection so that the head 2 and with it the jaws 7 may be turned to any desired position on the arm member 1 without twisting the chain 13.

The chain 13 only extends a short distance down the arm member 1 past the bend 3. At its rear end it is connected to a rod 22 which extends down the remainder of the arm member and projects from the lower end of the latter.

For holding the reacher and operating the jaws a handgrip is provided comprising a fixed handle 23 and a movable handle 24. The handle 23 is fixed to the end of the arm member 1 by welding or other means, while the handle 24 is pivoted to the handle 23 by means of a rivet or pin 25.

A toggle lever 26 is arranged between the handles 23 and 24. It is pivoted at one end to the handle 24 by means of a pin 27, while at its other end it slidably engages the handle 23. In order to reduce friction a roller 28 is provided at this end of the lever 26.

The lever 26 which, like the handles 23 and 24, is of U section, is connected with the rod 22 by means of a cross bolt 29 which is rotatably mounted in the lever 26. The end of the rod 22 passes through a transverse hole formed in the bolt 29 and is threaded to receive an adjusting nut 30. By turning this nut the connection between the handles and the jaws may be adjusted as required.

The operation of the reacher will be clear from the foregoing description. The head 2 and with it the jaws 7 are turned to the desired position on the arm member 1 and are then caused to grasp any desired object by squeezing the handles 23 and 24 which themselves form a handgrip by which the reacher is held. As the handle 24 approaches the handle 23 the roller 28 is caused to roll on the handle 23 by the action of the toggle lever 26 which thus exerts a pull on the connecting rod 22 and chain 13.

It will be apparent that the arm member 1 may be made as long or as short as is required by the purpose for which the reacher is designed. Furthermore various modifications are possible in the construction of the device. Thus, it is not essential that the arm member 1 should be bent at 3; it could be made straight,

in which case the chain 13 could be omitted, the connecting rod 22 then being connected directly to the stud 15.

Again, one of the jaws 7 could be fixed to the head, the other jaw only being operated by the chain 13 or other connecting member.

For certain purposes it may be preferred to provide the jaws 7 with resilient gripping faces. This may be done by fitting rubber blocks such as 31 in the ends of the jaws. The shape of these blocks, as well as that of the jaws themselves, may be modified in accordance with the intended use of the reacher.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A long-arm reacher comprising a rigid arm member, a head mounted on one end of the arm member so as to be turnable about the axis thereof, a pair of relatively movable jaws carried by the head, a manually actuatable jaw-operating member for moving the jaws to closed position adjacent the other end of the arm member and means operatively connecting the operating member with the movable jaw or jaws.

2. A long-arm reacher according to claim 1, wherein both of the jaws are pivoted to the head and are adapted to be moved simultaneously towards or away from each other by means of the operating member.

3. A long-arm reacher according to claim 2, wherein the axes of the pivotal jaws are transverse to the axis of the arm member.

4. A long-arm reacher according to any of the preceding claims, wherein the arm member is bent through an angle at a point towards the head end thereof.

5. A long-arm reacher according to any of the preceding claims, wherein the arm member is hollow and wherein the operating member is connected with the movable jaw or jaws by means of a connecting member which is mounted for longitudinal movement within the arm member.

6. A long-arm reacher according to claim 5, wherein the connecting member is flexible for at least part of its length.

7. A long-arm reacher according to claim 2 and either of claims 5 and 6, wherein the connecting member is connected with the jaws by means of two links, each of which is pivotally connected at one end to one of the jaws and at the other end to the connecting member.

8. A long-arm reacher according to any

of the preceding claims, wherein the connection between the operating member and the movable jaw or jaws includes a swivel connection.

5 9. A long-arm reacher according to any of the preceding claims, wherein the operating member comprises a movable handle which is pivoted to the arm member and is movable towards and away from a fixed handle provided on the arm member.

10 10. A long-arm reacher according to claim 9, and any of claims 5 to 7, wherein the connecting member is connected to
15 an intermediate point on a toggle lever

arranged between the two handles, which lever is pivoted at one end to one of the handles and slidably engages the other handle.

11. A long-arm reacher substantially as 20 herein described with reference to the accompanying drawing.

Dated this 18th day of January, 1949.

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